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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

ANGEBRANNDT, MARTIN J

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 11/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/656,503

Applicant(s)

DESSAUER, ROLF

Examiner

Martin J. Angebrannt

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 and 38 is/are pending in the application.
- 4a) Of the above claim(s) 26-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25, 33-36 and 38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-36 and 38 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1756

1. The response of the applicant has been read and given careful consideration. Responses to the arguments of the applicant are presented after the first rejection to which they are directed. The obvious double patenting rejection is obviated by the proper terminal disclaimer filed 8/14/06. Rejections of the previous office action not repeated below are withdrawn based upon the arguments and amendments of the applicant.

2. Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-25, 33-36 and 38, drawn to a composition including a phthalocyanine dye precursor, binder and IR absorber, the composition coated as a layer and a system including the medium, classified in class 430, subclass 270.15.
- II. Claims 26-32, drawn to a methods of recording in a composition including a phthalocyanine dye precursor, binder and IR absorber coated as a layer using a laser, classified in class 430, subclass 269.

The inventions are distinct, each from the other because of the following reasons:

3. Inventions group I and group II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product and the IR laser can be used to write information into other layers not including the composition set forth in the claims noting that the composition can be used to form a label See MPEP § 806.05(h). In the instant case the composition may be imaged using a thermal head or the like to cause the heating.

Art Unit: 1756

4. Because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

5. Because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

6. During a telephone conversation with W Bradley Haymond on may 4,2006 a provisional election was made with traverse to prosecute the invention of group I, claims 1-25 and 33-38. Affirmation of this election must be made by applicant in replying to this Office action. Claims 26-32 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

7.

8.

9.

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 6,20,31 and 35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

“polymethyl indolium” should read - - polymethine indolium- - . The applicant disagrees, but fails to appreciate that the linakge between the terminal moieties is a methine

Art Unit: 1756

linkage. While the indolenium often has methyl groups pendent upon the azole ring, It seem clear that the applicant should speak to a chemist.

In claims 10,11 and 23, "ethyl acetate butyrate" is confusing. This polymer does not seem to exist as named in either the USPTO or Chemical Abstracts databases. Doe the applicant mean to claims a co-polymer of ethyl acetate and ethyl butyrate or ethyl acetobutyrate. If this is merely a nomenclature issue, the examiner would appreciate any evidence the applicant might rely upon to amend the specification to change the recitation. The applicant states that this is a compound containing these moieties. Please include proper chemical name (perhaps form the bottle or packaging) or change the claims language to - - a polymer containing ethyl, butyrate and acetate moieties- - and speak to a chemist before attempting to address this issue.

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1756

14. Claims 1,4,6,8,9,12,13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over RD 39219.

RD 39219 teaches a 1,3-diiminoisoindoline and/or related phthalocyanine precursors combined with a thermally cleavable adduct capable of generating a reducing phenolic compound when heated and a near IR absorbing dye. Suitable 1,3-diiminoisoindoline are disclosed in formula D111, which when reacted forms a metal free phthalocyanine. If desired the corresponding metallized phthalocyanine can be produced by the inclusion of a metal salt, such as copper acetate. The reaction to form the phthalocyanine is more efficient in the presence of a reducing agent. The use of an adduct which releases hydroquinone upon heating to 150 degrees C is disclosed (page 2). The use of a dye as NIR absorber is disclosed. The addition of binders, thermal stabilizers, UV stabilizers, surfactants or the like is disclosed. (page 2).

It would have been obvious to use the described composition with an NIR laser and a reducing agent.

The claim limitation added describes the power and the duration, but does not recite an area (laser spot size). A laser can be focused down to approximately the wavelength of the laser as the diffraction limit of focusing is $k\lambda/NA$, where NA is the numerical aperture, λ is the wavelength and k is a proportionality factor. The examiner holds that the medium of RD 39219 will record information when exposed to light for 0.1-0.5 msec at 30-50 mW when the beam is sufficiently focused. The squarilium/squarene does sensitize the medium to the 700-800 nm region which is in the near IR. (see Satake et al. '816 at 55/47-56/11, (55/57) and 830 nm laser in examples 89-90 (69/52) and the examiner notes that the temperature only has to reach 150

Art Unit: 1756

degrees. Therefore the rejection stands noting that in example 1 of the instant specification, the composition is applied to paper, a CD or polyethylene.

15. Claims 1,4-6 and 8-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over RD 39219 and JP 58-008357.

JP 58-008357 in example 1 uses 1-amino-3-iminoisoindolene, Cu-hydroxyethylsarcosine, hydroquinone and polyvinyl butyral, which when heated to 120 degrees C forms a blue Cu phthalocyanine (col. 5). Example 2 uses acetic acid as the reducing agent and ethyl cellulose as the binder and a cobalt monoethanol amine complex as the metal source and changes color at 150 degrees C (col 5-6). Example 3 uses a Ni glycine salt as the metal source, urea, benzophenone and polyvinyl alcohol and changes color at 150 degrees C (col 6). The compositions disclosed all are thermographic and change color when heated at 100-150 degrees C (col 3).

It would have been obvious to one skilled in the art to modify the teachings of RD 39219 by using other metal sources, such as Cu- hydroxyethylsarcosine, known to react with iminoisoindolines to form metallized phthalocyanine as evidenced by JP 58-008357, in place of those disclosed by RD 39219 with a reasonable expectation of forming a useful photothermographic recording material. Further it would have been obvious to use the other reducing agents, such as hydroquinone or ascorbic acid, and the binders, such as ethyl cellulose, disclosed by JP 58-008357 in the medium in place of those exemplified by RD 39219 with a reasonable expectation of forming a functional photothermographic recording medium which colors at temperatures of less than 150 degrees.

Art Unit: 1756

Alternatively, it would have been obvious to modify the examples of JP 58-008357 by adding an IR absorbing dye, such as that disclosed by RD 39219 which is disclosed as enabling the heating to temperatures of 150 degrees with a reasonable expectation of forming a useful photothermographic recording medium able to be colored by heating using a laser without the need for contact from a thermal head or the like based upon the compositions of JP 58-008357 becoming colored in the 100-150 degree range.

These compositions are similar to group 2a in the table on page 309 of Venkataraman (phthalogen brilliant blue IF3G, phthalogen brilliant green IF2B and phthalogen brilliant green IFFB) which are discussed in the instant specification (prepub at [0033]).

The claim limitation added describes the power and the duration, but does not recite an area (laser spot size). A laser can be focused down to approximately the wavelength of the laser as the diffraction limit of focusing is $k\lambda/NA$, where NA is the numerical aperture, λ is the wavelength and k is a proportionality factor. The examiner holds that the medium of RD 39219 as modified by JP 58-008357 will record information when exposed to light for 0.1-0.5 msec at 30-50 mW when the beam is sufficiently focused. The squarilium/squarene does sensitize the medium to the 700-800 nm region which is in the near IR.(see Satake et al. '816 at 55/47-56/11, (55/57) and 830 nm laser in examples 89-90 (69/52) and the examiner notes that the temperature only has to reach 150 degrees in the media of RD 39219 and JP 58-008357. The examiner notes that both references are directed to thermal recording layers (even the abstract support this). Therefore the rejection stands. **The examiner has relied upon and oral, spot, translation, but will provide a translation for the record as it becomes available. The citation of specific portions meets the requirement that the examiner point out where in the document, the**

Art Unit: 1756

teachings relied upon are. Most of the applicants in this art are Japanese and have no difficulty reading their native tongue. Contrary to the assertion by the applicant, a translation need not be provided with the first action. Please note that being available under 102(b), these clearly may be foreign patent documents and in another language.

16. Claims 1 and 4-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over RD 39219 and JP 58-008357, in view of Kawauchi '895 and/or Satake et al. 816.

Kawauchi '895 describes the use of light to heat conversion means using infrared absorbing dyes, such as benzo(thio)pyriylum methine, naphthoquinone, squarilium, dihydropyrimidine, pyrilium, cyanine. [0087-0090]. These are used in forming printing plates. Notes dye 2, which is the dyes recited in claims 21.

Satake et al. 816 teach photothermorecording media, where the IR laser is used as a recording light source. Useful light absorbers are polymethine, cyanine, squarylium, metal complexes, chroconium, metal dithiol complexes, pyrilium, naphthoquinone dyes and the like (55/54-56/23). These are described as used with dye precursors and their developers. The use of various binders including is disclosed (54/11-33). The addition of the IR absorber allow the thermal recording sheet to be recorded optically. (55/41-46). The use of a thermal printer (60/34-35) or a laser plotter with a 30 mW 830 nm laser (48-56) is disclosed

It would have been obvious to one skilled in the art to modify the media resulting from the combination of RD 39219 and JP 58-008357 by using other known IR absorbing dyes, as light to heat conversion means in place of the squarylium dye disclosed by RD 39219 with a reasonable expectation of forming a useful photothermographic medium based upon the

Art Unit: 1756

disclosure of equivalence of the IR absorbers disclosed by Kawauchi '895 and/or Satake et al. 816.

The rejection stands for the reasons above without further comment as no further arguments were directed at this rejection.

17. Claims 1,4-15,17,20-25,33,35 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over RD 39219 and JP 58-008357, in view of Fleming et al. '536, Anderson et al. '708 or Anderson et al. WO 03/032299.

Fleming et al. '536 teach an optical recording medium comprising a writable CD. The substrates may be grooved (3/44-67). The recording layer includes a leuco dyes, which can be thermally reacted to form a dye (4/49-59). The sensitizing dye is one, which absorbs at the desired wavelength (4/39-46). The addition of a thermal acid generator is disclosed. (16/32+). The exposure uses a 708 nm laser which has a power of 4-16 mW and the duration of the exposure of a point by the 3.56 micron the laser spot when the medium is rotated at 2.8 m/s is 1.2 microseconds.

Anderson et al. '708 teach the writing of label data on the topside of and optical disk with respect to figure 3. The use of photothermal recording layers comprising leuco dyes which are reduced under the influence of heat provided by IR light sources [0028-0057]. Useful near IR absorbers are disclosed and include cyanine dyes and the like [0058-0072].

Anderson et al. WO 03/032299 teach the writing of label data on the topside of and optical disk with respect to figure 3. The use of photothermal recording layers comprising leuco dyes which are reduced under the influence of heat provided by IR light sources (6/29-12/11). Useful near IR absorbers are disclosed and include cyanine dyes and the like (12/12-17/17).

Art Unit: 1756

In addition to the basis provided above, it would have been obvious to one skilled in the art to modify the combination of RD 39219 and JP 58-008357 by applying this composition to an optical disk substrate as is taught by each of Fleming et al. '536, Anderson et al. '708 and Anderson et al. WO 03/032299 with a reasonable expectation of the resulting layer being useful for recording digital data as taught by Fleming et al. '536 or providing a means for labeling the CDs as taught by Anderson et al. '708 or Anderson et al. WO 03/032299 based upon these references establishing the use of leuco dyes based compositions as either a recording layer or as a label forming layer.

The rejection stands for the reasons above and the examiner notes that the laser may be used to record information on the label (ie in the recited composition) or in a different recording layer. Not until the method claims are prosecuted can the two be tied together.

18. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over RD 39219 and JP 58-008357, in view of Perkins et al. '004 or Fleming et al. '704

Perkins et al. '004 teach phthalocyanine precursors, where the precursor contains more than 4 phthalonitrile units per molecule and has no tinctoral (coloring) qualities in itself, but which yield the corresponding colored phthalocyanine upon heating or treatment with reducing agents. (1/20-25). These decompose at 120 degrees C or less in the presence of a reducing agent, such as ascorbic acid (6/39-45).

Fleming et al. '704 teaches leuco phthalocyanine (cyanine precursors) which are reacted with naphthoquinones and heated at 150 degrees C for three seconds to yield the corresponding Cu phthalocyanines (45/52-57) See also 32/48-33/12 which describes the use of reducing agents.

Art Unit: 1756

In addition to the basis above, it would have been obvious to modify the combination of RD 39219 and JP 58-008357 as set forth above by the use of other phthalocyanine precursors known to undergo thermal decomposition in the presence of reducing agents, such as ascorbic acid, such as those phthalocyanine precursors taught by Perkins et al. '004 or Fleming et al. '704 with a reasonable expectation of forming a useful photothermal recording layer.

The rejection stands for the reasons above without further comment as no further arguments were directed at this rejection.

19. Claims 1-25 and 33-35 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over RD 39219 and JP 58-008357, combined with either Perkins et al. '004 or Fleming et al. '704, in view of Fleming et al. '536, Anderson et al. '708 or Anderson et al. WO 03/032299.

In addition to the basis provided above, it would have been obvious to one skilled in the art to modify the combination of RD 39219 and JP 58-008357 with combined with either Perkins et al. '004 or Fleming et al. '704 as set forth above by applying this composition to an optical disk substrate as is taught by each of Fleming et al. '536, Anderson et al. '708 and Anderson et al. WO 03/032299 with a reasonable expectation of the resulting layer being useful for recording digital data as taught by Fleming et al. '536 or providing a means for labeling the CDs as taught by Anderson et al. '708 or Anderson et al. WO 03/032299 based upon these references establishing the use of leuco dyes based compositions as either a recording layer or as a label forming layer.

The rejection stands for the reasons above without further comment as no further arguments were directed at this rejection.

Art Unit: 1756

20. Claims 1-25,33-36 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over RD 39219 and JP 58-008357, combined with either Perkins et al. '004 or Fleming et al. '704, in view of Fleming et al. '536, Anderson et al. '708 or Anderson et al. WO 03/032299, further in view of Gravsteijn et al. '811 and Melles Griot Catalog (1995/96) pp. 49-4 through 49-5.

Gravsteijn et al. '811 teach the use of 800 nm lasers with powers of 10 mW (8/24-36). The use of optical recording media with squarilium dyes with lasers in the 750-850 nm range and the formation of pits having 10 microns sizes is disclosed (4/40-68)

Melles Griot Catalog (1995/96) pp. 49-4 through 49-5 teaches diode lasers operating in the 750 and 780 nm range with powers of 1-180 mW output.

It would have been obvious to one skilled in the art to modify the teachings of RD 39219 and JP 58-008357, combined with either Perkins et al. '004 or Fleming et al. '704, in view of Fleming et al. '536, Anderson et al. '708 or Anderson et al. WO 03/032299 as discussed above by using other wavelengths based upon the disclosure by Gravsteijn et al. '811 that the NIR squarilium dyes absorbs in the 750-800 nm range and to use commercially available lasers, such as those in the Melles Griot Catalog (1995/96) pp. 49-4 through 49-5 with higher powers to allow the writing of information in less time as exposure is power multiplied by time.

The rejection stands for the reasons above without further comment as no further arguments were directed at this rejection.

21. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO


Art Unit: 1756

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J. Angebranntt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Martin J Angebranntt
Primary Examiner
Art Unit 1756

10/30/2006